1. ***Describe the practice proposed for recognition and list its objectives. Detail how the practice is innovative, how it promotes high student achievement, and how it can be replicated.***

The Technofilles is a club that aims to balance "a gender gap" by attracting high school females to careers in computer technology and mathematics by providing them with hands-on training, workshops and industrial/educational opportunities. Since our other goal is "giving back to the community," the Technofilles, in turn, demonstrate this technological expertise through projects that help the community.

The objectives of the Technofilles are:

1. ***To balance "a gender gap" in mathematics and computer technology by providing females with support and hands-on training.***
2. ***To help females attempt and assume leadership roles in computer technology, mathematics and science while addressing Core Curriculum Standards.***
3. ***To establish working partnerships with educational and industrial organizations that provide growth opportunities for female students.***
4. ***To train female students for leadership roles in society by fostering habits of civic involvement and service.***

In winter 1998 a few teachers from the mathematics and English departments joined together to discuss ways in which we could strengthen the skills and interests of our female students in math and computer technology. Works such as *Failing at Fairness, Schoolgirls* and *Gender Gaps* clearly indicated that females were receiving a second class education in these fields. Our observation had also taught us that males took over the computers in coed classes, few females took the Advanced Computer courses and Calculus courses, and no females had ever served on the "IN" team of Webmasters for our school. With a grant from the Tensor Foundation, we put our plan into action. As a jumpstart for our program, we joined with an affirmative action club already in our school and sponsored a forum on "Women in Mathematics and Science." Immediately following the forum, the formation of the Technofilles was announced, and thirty-four young women signed up for the club.

This is the third year of our successful operation. At bi-weekly meetings, members explore computer operations, participate in tutorial sessions to strengthen mathematical and technological skills, examine career possibilities in mathematics and plan forums and programs. Members participated in *Teentech* workshops co-sponsored by the American Association of University Women and DeVry Institute Both advisers and students have gained knowledge and skill from skill-building workshops on HMTL coding, "Troubleshooting Your PC," "How to Build Your Personal Computer" as well as our district technological workshops.

The Technofilles have provided community service on national, state and local levels. For the national service-learning initiative, they designed and implemented a Web site; they also designed one specifically for a "Best Practice" of our school. They conducted a computer workshop for women in the community, and help our senior citizens develop computer skills. A bonus: we now have female Webmasters!

Based on our track record, such a club promotes high female student achievement because it provides them with the motivation, training and psychological tools needed to achieve success in areas in which they previously thought they were deficient. Not only has female enrollment in advanced math and computer classes increased, but also these

accomplishments. By following the steps outlined in response to question 4, such a club can easily be replicated.

2. ***List the specific Core Curriculum Standards, including the Cross-Content Workplace Readiness Standards addressed by the practice and describe how the practice addresses those standard(s). Provide an example to substantiate your response.***

Many of the Cross Content Standards as well as those of mathematics and the language arts are addressed by this practice.

1. **Becoming acquainted with the components of the computer.** *Developing occupational skills:* Cross Content Workplace Readiness 1 (8); *Using technology:* CCW 2(1-10)
2. **Troubleshooting Your Computer Workshop**. *Developing occupational skills:* CCW 1 (8); *Using technology:* CCW 2(1-10); *Math problem-solving*: Mathematics 4.1 (10-18); *Using computers:* M 4.5 (9)
3. **Building a Personal Computer in Groups.** *Developing occupational skills:* CCW 1 (8); *Using technology:* CCW(1-10); *Critical thinking and Problem Solving:* CCW 3 (1-15); *Self-management skills and working in groups:* CCW 4 (1-5); *Applying safety rules*: CCW 5 (7); *Math problem-solving*: Mathematics 4.1 (10-18); *Using computers:* M 4.5 (9)
4. **Sponsoring a Forum Honoring Women in Traditionally Male Bastions:** *Addressing Audience*: Language Art Literacy 3.1 (8,9,18); *Writing to Speakers:* LAL 3.3 (18); *Achieving high math level without regard to gender*: M 4.16 (7, 11)
5. **Creating Web Pages for Service-Learning, School Programs, Senior Citizens.** *Developing occupational skills:* CCW 1; *Using technology:* CCW 2;M 4.5; *Developing critical thinking/problem solving:* CCW 3, M 4.1; *Self-management skills and cooperative work:* CCW 4, M 4.1; *Writing Copy:* LAL 3.3; *Achieving high level without regard to gender*: M 4.16.
6. **Conducting a Workshop, "Bring Your Mommy to School" in which students instructed female members of the community**. *Using technology*: CCW 2; M 4.5; *Speaking before a group*: LAL 3.1 (1-17); *Listening to responses*: LAL 3.2 (5-6); *Solving problems using multimedia technology*: LAL 3.5 (17).

3. Describe the educational needs of students the practice addresses. Document the assessment measures used to determine if the objectives of the practice have been met. Provide assessments and data to show how the practice meets these needs.

The educational needs of the students that the practice addresses are:

1. Inequitable achievement between males and females in computer technology and mathematics, as indicated by class enrollment.
2. The need to provide hands-on training in computer technology that would specifically address this problem.
3. Females, appearing to feel deficient in these areas, needed opportunities to demonstrate technological skills to the community.
4. **A need to observe Mathematics S 4.16 (7): Students should receive equitable treatment without regard to gender...or predetermined expectations for success.**

The assessment measures used to determine if the objectives/needs have been met:

1. *To balance "a gender gap" in mathematics and computer technology by providing females with support and hands-on training.*

- Workshops specifically designed to bridge the gender gap. Our advisers and members attended the The TeenTech Conference jointly sponsored by AAUW and DeVry that provided 5 different workshops in computer technology and science open to females only. (NEED #2)
- District Technological Workshops. Our members attended workshops sponsored by the district and geared for female learning: HTML Coding, Troubleshooting Your PC, Building a Personal Computer, Constructing a Web site. (NEED #2)
- Experience in creating Web sites. Members designed 4 Web sites and served as Webmasters for the school. (NEED #3)

2. *To help females attempt and assume leadership roles in computer technology and mathematics while addressing the Core Curriculum Standards.* (NEED #1)

- Class Enrollment in Advanced Computer and Math Classes: Four females signed up for Independent Studies in Web Design/Maintenance (a first!) in 2000-01; 10 females out of 45 students in the computer course (an 18 % increase from last year); 5 females in AP Computer C++, a new course. Female enrollment increased in AP Calculus (21 females out of 38 total: from 32% to 55%). (NEED #1)
- Individual Leadership Awards: 1) County Resource Center for Women honored one of our members as "Young Woman of the Year" for her work in gender equity. 2)NJ Statewide Non-traditional Career Assistance Center ('01) chose the two Technofilles founders for an Equity Achievement Award.
- Journals of members indicate personal growth.
- Continued 2001-02 class enrollment in these areas: AP Computer Science: 18 out of 35 students; Computer Applications: 4 out of 18 students; Introduction to Computers: 3 out of 13; AP Calculus: 19 out of 32 students.
- 2001 AP Calculus Scores: 12 females took the AP Calculus test in 2001, achieving a mean of 3.0, an increase from '00 grades: 6 females with a mean grade of 2.33.
- SAT Mathematical Performance: '01 Mean Female Score – 531, an increase of +13 from '00 when average NJ math performance for females fell by –1.

3. *To establish working partnerships with educational and industrial organizations that provide growth opportunities for female students.*(NEED #3)

- The Tensor Foundation has provided some funds for workshops.
- DeVry Institute has opened its programs to us and worked collaboratively.
- Dell Computer Corporation and the The CEO Forum on Education and Technology have visited our school and praised the Technofilles in their reports.

4. *To train female students for leadership roles in society by fostering habits of civic involvement and service.* NEED #4

- Four female Web masters; they designed NJ Service-Learning Web site and redesigned sites for three other school programs.
- Members taught a spring workshop, "Bring Your Mommy to School" with the hope of allaying their mothers' computer anxiety.
- Members regularly visited the senior citizen complex to teach computer skills.
- Members tutor each other to achieve success.

4. Describe how you would replicate this practice in another school or district.

1. Get together a team of teachers and administrators to see if a gender gap exists – check advanced math and computer science class lists to see the gender makeup. Who are the Webmasters of your school? Are they all or mostly male? If the need exists, address it by forming a club to foster female achievement in traditionally male bastions. Get a dedicated and knowledgeable adviser (s).
2. Tie developing the females' achievement with public service. Guide them in using what they have learned to help the community. It also helps to change the public mindset that females are not good in math and technology.
3. Line up your connections with supportive groups – college programs, technological institutes, companies as well as with the American Association of University Women and Douglass College's Girls' Institute. They will help you get in touch with helpful workshops, provide mentors and hands-on training.
4. Develop promotional techniques to stir the beginning membership. We already had a school club that fostered equity education. Announced by invitational posters and banners, we held a forum, featuring successful women in math and technology. When we announced forming the Technofilles there, a motivated group was ready to sign up.
5. First step in addition to bi-weekly meetings is to involve the girls in workshops that will hone their skills. Our members will never forget the moment that, working in teams of three, they constructed a computer from scratch!
6. Provide the members opportunities to learn and perfect Web design. Take advantage of your school district technology classes and ask them to give a few specific classes geared for females only.
7. Encourage and guide the members to demonstrate their skills by teaching others. We went to the senior citizens' complex at the beginning. As the members' skills advance, contact other community organizations. Your members will learn much from helping others design Web sites and create attractive flyers and brochures. A highlight of last year was our "Bring Your Mommy to School," an evening technological workshop for females in the community taught by our Technofilles.
8. Arrange for tutoring for students having difficulty in advanced math classes. We made arrangements with both the National Honor Society and other club members to help students needing support.
9. Make charts to announce progress; graphs indicating rising enrollment of females in AP Calculus, Advanced Computer Design, posted records of community service.
10. Assess your program periodically, using available data: class enrollment, grades, student surveys, college responses (We're starting this year to see how our members fared).
11. Send letters to community organizations that you want to target to apprise you of situations in which they need help.
12. Commend your members whenever possible. We have a "Student of the Month" for co-curricular and service achievement. Look for programs in your school and community that will acknowledge the work of these enterprising young women.